SECTION 5.0 RESIDENTIAL PROJECTS

This section addresses how to comply with the 10% Rule for construction on individual residential lots. The standard application process and calculation worksheet, presented in Section 4.0, are typically not required for individual residential lot development projects, however, requirements may vary by local jurisdiction. Applicants should check with the appropriate local jurisdiction to ensure compliance.

Residential projects that involve an impervious surface area less than 250 square feet are exempt from the 10% Rule requirements. It is recommended that applicants plant trees and/or shrubs, to compensate for site impacts. Local Critical Area staff will utilize discretion based upon the specific site and the type of project proposed. Construction of BMPs or the payment of offset fees are not required for these exempted projects.

Residential projects taking place on an individual single-family lot (dwelling, garage, shed, etc.) that involve an impervious surface area of 250 square feet or more must comply with the 10% Rule, using one of the three options described below:

Option 1. Submit a Residential Water Quality Management Plan

Option 2. Plant Trees and/or Shrubs on the site

Option 3. Obtain an Offset

Option 1. Residential Water Quality Management Plan
The preferred option to comply with the 10% Rule for individual residential lots is to submit a Residential Water Quality Management Plan. This plan shows how non-structural stormwater BMPs will be used at the site. In some cases, structural BMPs may also be used. The process for submitting a Residential Water Quality Management Plan is as follows:

1. Determine if the Site is Eligible
2. Develop a Narrative and Site Plan to Minimize, Disconnect, Store and/or Treat Runoff From Impervious Surfaces
3. Submit Plan to Critical Area Reviewer

Note: Individual residential development projects that disturb an area greater than 5,000 square feet may be required to submit a standard stormwater management plan for a single lot residential construction per Maryland Department of the Environment (MDE) requirements. A model permit has been developed by MDE Water Management Administration. The model is available at: http://www.mde.state.md.us/assets/document/standard_plan_v8.0.pdf. These standard plans outline the minimum requirements for stormwater management and erosion and sediment control practices for residential lots.

Requirements: The applicant must submit a narrative and associated plans and specifications for the proposed development. The narrative will address water quality measures used to prevent or treat stormwater runoff from the proposed development and will describe how various impervious surfaces will be treated using residential stormwater techniques (see Appendix F). The drawings will be at an appropriate scale to depict impervious cover and non-structural techniques to treat stormwater runoff. General guidelines on how to measure impervious surface can be found in Section 4.0.

Narrative: The narrative portion of the plan will indicate what practices will be used on the site. Applicants are encouraged to use any of the non-structural stormwater Best Management Practices (BMPs) described in Appendix F, as they are well suited for individual residential lots. The preferred non-structural BMPs are organized under the following strategies:

- Disconnect Rooftop Runoff
- Store Rooftop Runoff
- Disconnect Non-Rooftop Runoff

The specific techniques that are recommended for individual residential lots are listed in Table 5.1, and more detailed information about these techniques is provided in Appendix F. Applicants are encouraged to utilize a combination of these techniques to disconnect or store all of the stormwater runoff from the lot and essentially "erase" the proposed impervious surfaces for computational purposes. Figure 5.1 illustrates the application of multiple stormwater techniques at a residential site. In addition a sample Residential Water Quality Management Plan is provided at the end of this section.

Table 5.1 Recommended Techniques for Individual Residential Lots

Strategy	Technique
Disconnect Rooftop Runoff	Rain Garden
	French Drains and Dry Wells
Store Rooftop Runoff	Rain Barrels
Disconnect Non-Rooftop Runoff	Permeable Pavers
	Two-Track Driveway
	Pervious Deck Design

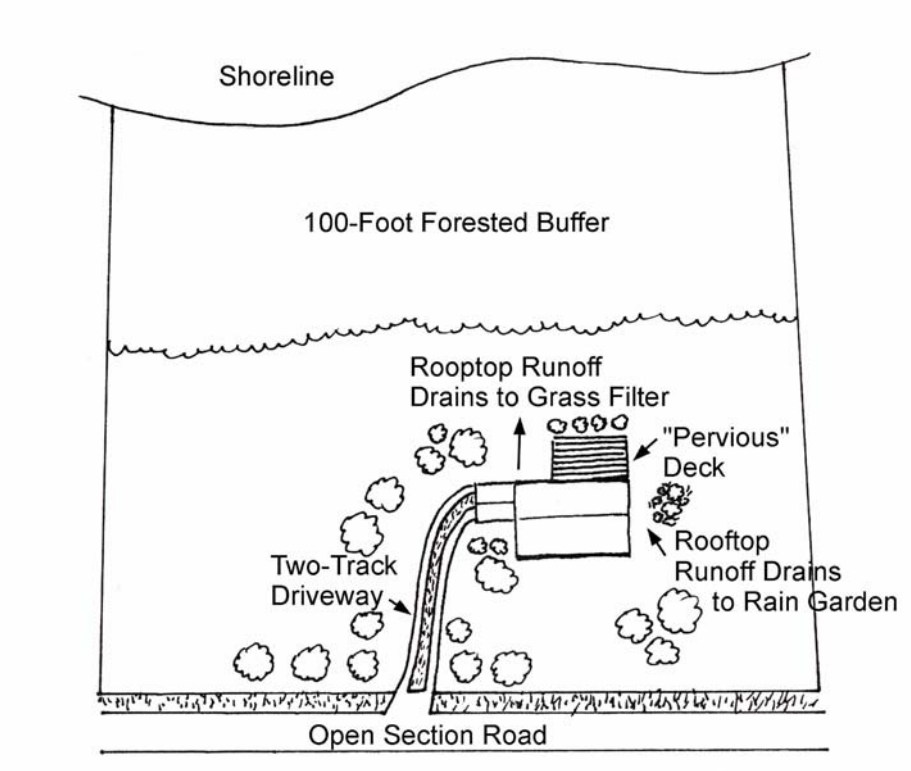


Figure 5.1 Illustrative Example of How Multiple Non-structural Stormwater Techniques Can be Applied at a Residential Site

Option 2. Tree and/or Shrub Plantings

When local government staff and applicant jointly determine that the nature of the project or site constraints warrant an alternative to the recommended residential BMPs under Option 1, staff may require the applicant to plant native trees and/or shrubs on the residential site. Trees and shrubs planted for stormwater management benefits should be nursery grown containerized or balled and burlap stock. In general, trees should be at least four feet in height and shrubs should be three gallons in size. A listing of native trees and shrubs is available at: http://www.dnr.state.md.us/criticalarea/trees.html.

Plantings should be accomplished at the following ratios:

Buffer and Buffer Exemption Areas: A minimum of three trees or nine shrubs shall be planted for every 100 square feet of the proposed development activity or a portion thereof at the individual lot. A combination planting of trees and shrubs is also acceptable. Please note that this formula satisfies both the 10% Rule and Buffer mitigation requirements. For more information on Buffers and Buffer Exemption Areas, see "Critical Area Buffer" in Section 7.

Non-Buffer Areas: The planting requirement for this area is a minimum of one tree or three shrubs for every 100 square feet (or portion thereof) of new impervious surface created. A combination planting of trees and shrubs is also acceptable.

The applicant should take steps to ensure the plantings are healthy and in good condition after the first growing season. This may entail watering, weeding, mulching, and use of tree shelters and other techniques to reduce deer browsing.

Option 3. Offsets

In the rare instance that residential stormwater BMPs and tree plantings are not feasible for the lot, the applicant may pay an offset fee in the localities that offer this option. More details regarding offset fees are provided in Section 6.0.

Sample Residential Water Quality Management Plan

NARRATIVE:
For:
Clifton Cumberland
6902 37th Place
South Hyattsville, MD 20700

Description of work: Erect a single family home
Total Site Area: 8,237 ft^2
Total Disturbed Area: 4,588 ft^2
Total Forest Area Before Construction: 8 trees; 1,742 ft^2
Total Forest Area After Construction: 10 trees; 2,115 ft^2
Existing Impervious Area: 0.0
Proposed Impervious Area: 1,512 ft^2 (18.3%)

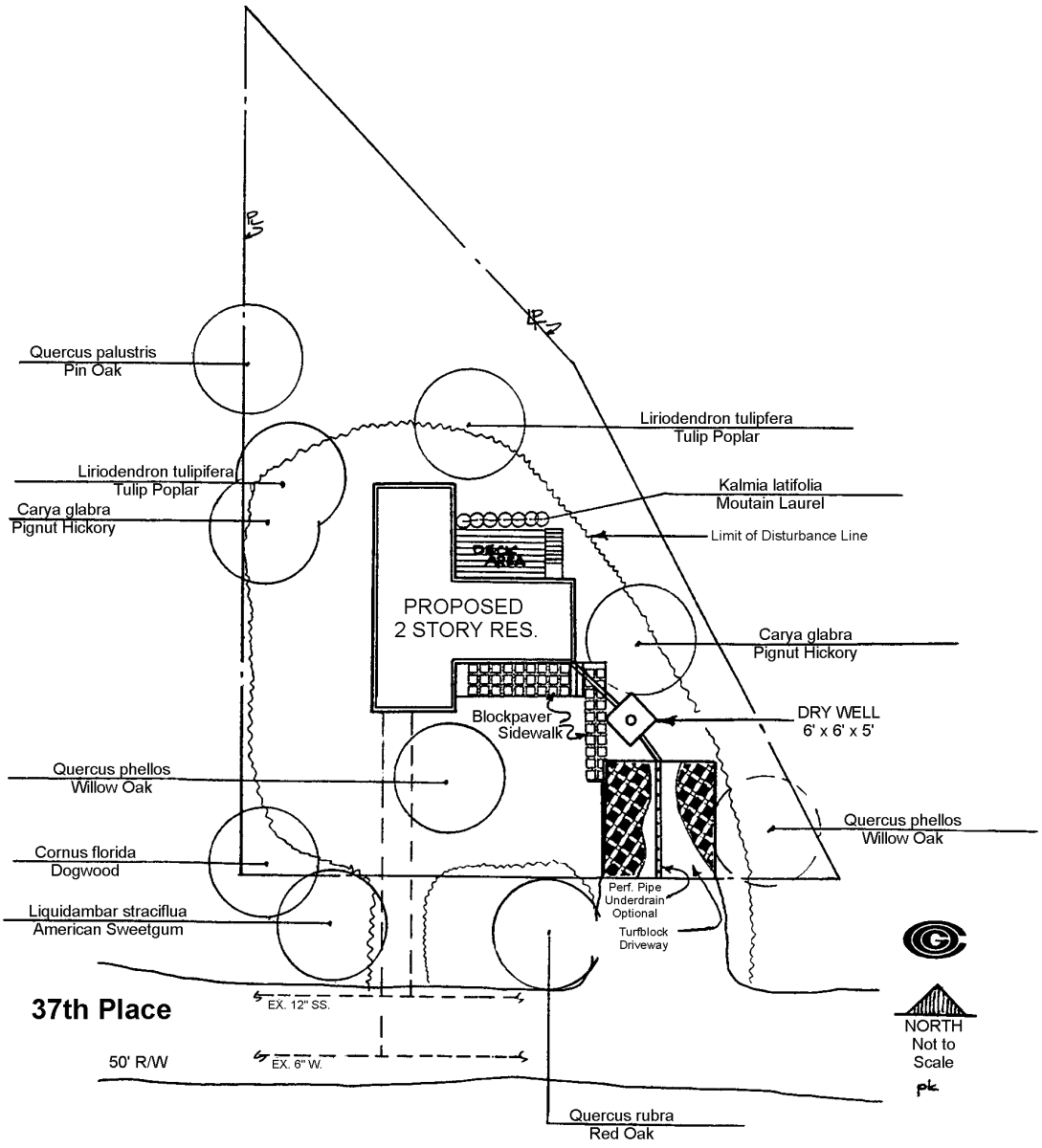
Non-Structural BMPs:
Permeable Pavers (Turfblock) for Driveway
Permeable Pavers (Blockpaver) for Sidewalk
Pervious Deck Design
Dry Well (See sizing information below)

Dry Well Sizing Information
Impervious Area Treated: 756 ft^2 (1/2 of rooftop area)
Utilized Following Equation to Determine Dry Well Surface Area (SA): $\frac{(DA)(P)}{12(D)(V)}$
Drainage Area (DA) = 756 ft^2
Rainfall Depth (P) = 1”
Depth of Proposed Trench (D) = 5ft
Voids Ratio for Gravel (V) = 0.35

$$SA = \frac{(756)(1)}{12(5)(0.35)} = 36ft^2$$

Trench Dimernsions: 6’ length
6’ wide
5’ deep

SITE PLAN:


Quercus palustris
Pin Oak
Liriodendron tulipfera
Tulip Poplar
Liriodendron tulipifera
Tulip Poplar
Carya glabra
Pignut Hickory
Kalmia latifolia
Moutain Laurel
Limit of Disturbance Line
PROPOSED
2 STORY RES.
Carya glabra
Pignut Hickory
Blockpaver
Sidewalk
DRY WELL
6' x 6' x 5'
Quercus phellos
Willow Oak
Quercus phellos
Willow Oak
Cornus florida
Dogwood
Perf. Pipe
Underdrain
Optional
Turfblock
Driveway
Liquidambar straciflua
American Sweetgum
37th Place
EX. 12" SS.
50' R/W
EX. 6" W.
NORTH
Not to
Scale
Quercus rubra
Red Oak